

# Hantavirus Infection

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*Disease Fact Sheet Series*

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## What is hantavirus?

Hantavirus is the name of a family of related viruses that have virtually a worldwide distribution.

## Who gets hantavirus infection?

Anyone can become infected with hantavirus, but persons who have exposure to rodents or to rodent-infested areas are at highest risk of the infection.

## Is hantavirus infection a new disease?

No. Outbreaks of disease compatible with certain types of hantavirus infection have been described in Europe and Asia since the 1930's. However, in the United States, there were no reports of acute disease associated with hantavirus prior to 1993. In the spring of that year, an outbreak of severe respiratory disease caused by a newly recognized strain of hantavirus occurred in the southwestern USA. It is now apparent that illnesses due to this strain occurred before the 1993 outbreak but were not recognized.

## How is hantavirus infection acquired?

Rodents are the natural hosts for all known hantaviruses, and the virus can be found in their urine, feces, and saliva. Once these substances have dried, humans can become infected by inhaling the dried materials as dust particles. This is the most common way the infection is acquired in the USA. People can also become infected by a rodent bite, and possibly by ingesting food or water contaminated by rodents. There is no evidence that people can become infected from other humans, other animals, or from biting insects.

## What are the signs and symptoms of hantavirus infection?

The kind of illness that the virus can cause in humans varies with the different types of hantavirus. A strain of the virus found in the USA can cause a severe illness known as hantavirus pulmonary syndrome. This is the same strain of virus that caused the 1993 outbreak of respiratory disease in the Southwest. Patients with this infection initially have some or all of the following signs and symptoms: fever, body aches, headache, nausea, vomiting, diarrhea, and dry cough. However, the main symptoms are shortness of breath and difficulty breathing. Progression to respiratory failure (an inability to breathe) can occur rapidly (typically about 4 days after the first symptoms appear). This disease is fatal in about half of the patients who contract it.

Hantavirus strains found in Asia and Europe can cause human disease characterized by acute fever, bleeding, kidney failure, and shock. Other strains are not known to cause human illness.

## How is hantavirus infection treated?

There is no specific treatment for persons with hantavirus pulmonary syndrome. Intensive supportive care in a hospital is currently the only known beneficial measure.

## Is the hantavirus present in Wisconsin?

To date (January, 2001), only one human case of hantavirus pulmonary syndrome has ever been reported in Wisconsin. A small percentage of mice in Wisconsin have been found to have antibodies against the hantavirus strain that causes hantavirus pulmonary syndrome. The risk of acquiring this infection in the upper midwest is extremely low.

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## How can a person avoid exposure to hantavirus?

Exposure to hantavirus can be minimized by avoiding contact with rodents and their droppings. The following precautions are adapted from guidelines issued by the Centers for Disease Control. If rodents, their nests, or areas contaminated with rodent droppings are encountered while carrying out these measures, follow the recommendations in point #4 below regarding cleanup/disinfection of rodents and contaminated areas. Note especially the need to thoroughly wet contaminated material with a disinfectant and the need to avoid stirring up dust which may be inhaled.

1. Control mice outside by reducing potential habitats and food sources near your home.
  - Elevate woodpiles, hay, and garbage cans off the ground (by using pallets, for example) and locate them at least 100 feet from house.
  - Cut tall grass and brush within 100 feet of the house.
  - Haul away junk cars, old tires, etc.
2. Make your home less attractive for rodents by keeping your house clean.
  - Store food, garbage, and pet food in containers with tight lids; put pet food away at night.
  - Wash dishes and clean counters and floors of any food debris.
3. Prevent mice from entering your home.
  - Seal any openings to your home larger than 1/4 inch using metal screen, steel wool or cement.
  - Clear brush/grass from around foundation.
  - Consider using metal roof flashing as a rodent barrier around the base of wooden dwellings (height of 12 inches and buried 6 inches in the soil).
4. Once the home has been secured from rodent entry, trap and dispose of rodents in home, clean and disinfect premises.
  - Before rodent elimination and cleanup is to be done in an infested building, ventilate closed buildings or areas inside buildings by opening doors and windows for at least 30 minutes. Use exhaust fans or cross ventilation if possible, and leave the area until the airing-out period is over.
  - Persons involved in clean up of rodent-contaminated areas or disposal of rodent carcasses should wear rubber or plastic gloves.
  - Spray dead rodents, rodent nests, droppings, or other items contaminated by rodents with a general purpose commercial household disinfectant (a dilute bleach solution of 3 tblspns. bleach added to 1 gallon water is also effective). Soak thoroughly and place in a double plastic bag. Seal bags and dispose by burying it 2 to 3 feet deep or by burning. If you have regular trash pickup, dispose of sealed bags in a garbage can with a tight-fitting lid.
  - After removing contaminated material, mop floors, counters, drawers, etc. with a solution of water, detergent, and disinfectant. Do not vacuum or sweep dry surfaces before mopping, as this will generate dust which can be inhaled. Dirt floors can be sprayed with disinfectant. Carpets can be disinfected with household disinfectants or by commercial-grade steam cleaning or shampooing. Contaminated bedding or clothing should be laundered with hot water and detergent, then machine dried on high setting or hung in the sun to dry.
  - Use spring-loaded traps baited with peanut butter to kill rodents. Commercial rodent poisons can be used only if there is no chance that children or pets will be accidentally exposed. Always follow the instructions on the specific product. Dispose of dead rodents as outlined above.
  - When done, wash gloved hands in a household disinfectant and then soap and water before removing gloves. After removal, wash hands thoroughly in soap and water.
5. Campers should consider the following precautions:
  - Avoid contact with rodents, their nests, and burrows as much as possible (e.g. pitch camp away from woodpiles) and avoid cabins that are rodent infested until they have been properly cleaned and disinfected.
  - If possible, avoid sleeping on bare ground. Use a floored tent or camp cots and ground cloth.
  - Keep food in rodent-proof containers and do not drink untreated surface water.